

PROJECT ELEMENT NO.: 30062

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

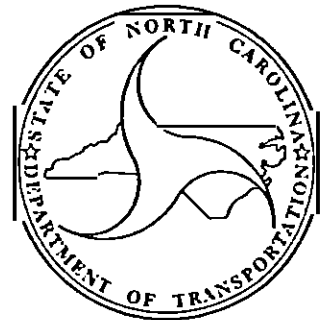
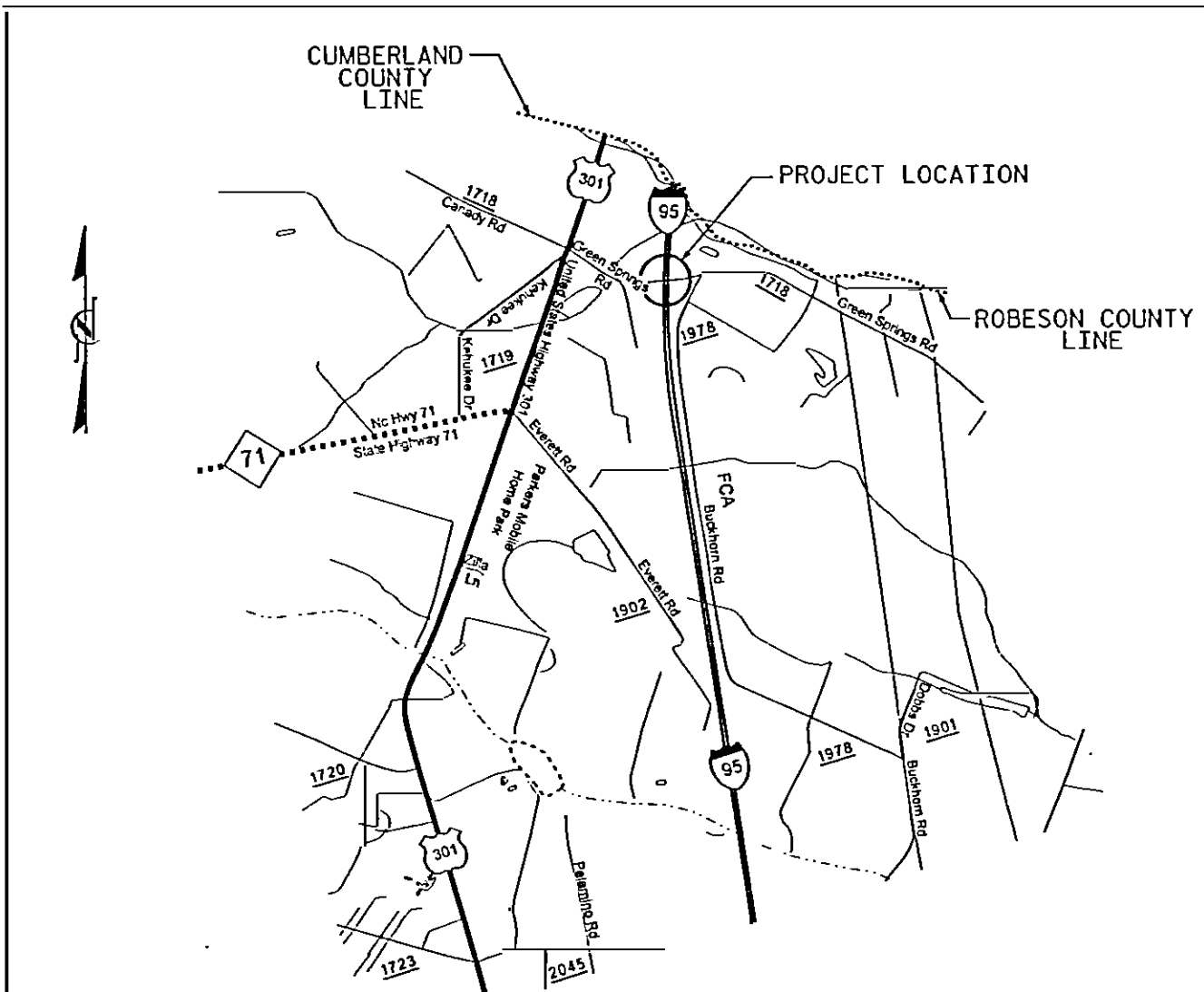
ROBESON COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	30062		

LOCATION: BRIDGE NO. 169 OVER I-95 ON SR 1718
BETWEEN US 301 AND SR 1900 IN ROBESON COUNTY.

TYPE OF WORK: REPAIR OF EXISTING STRUCTURE. (REPLACEMENT OF SPAN B).

STRUCTURE



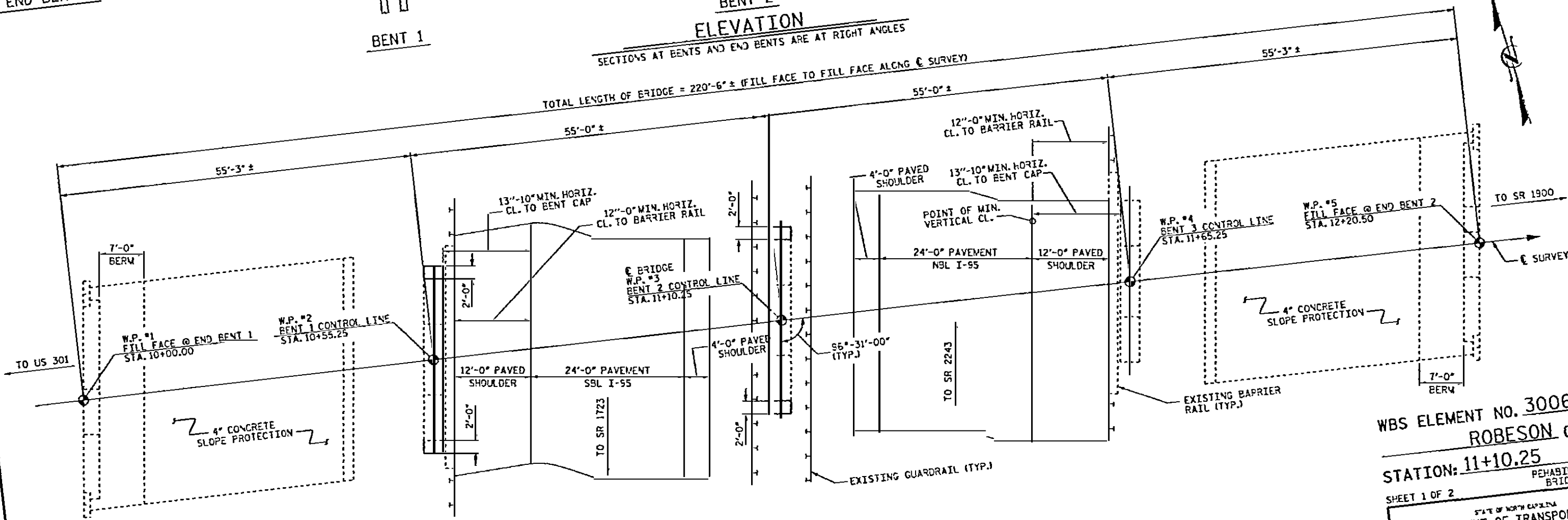
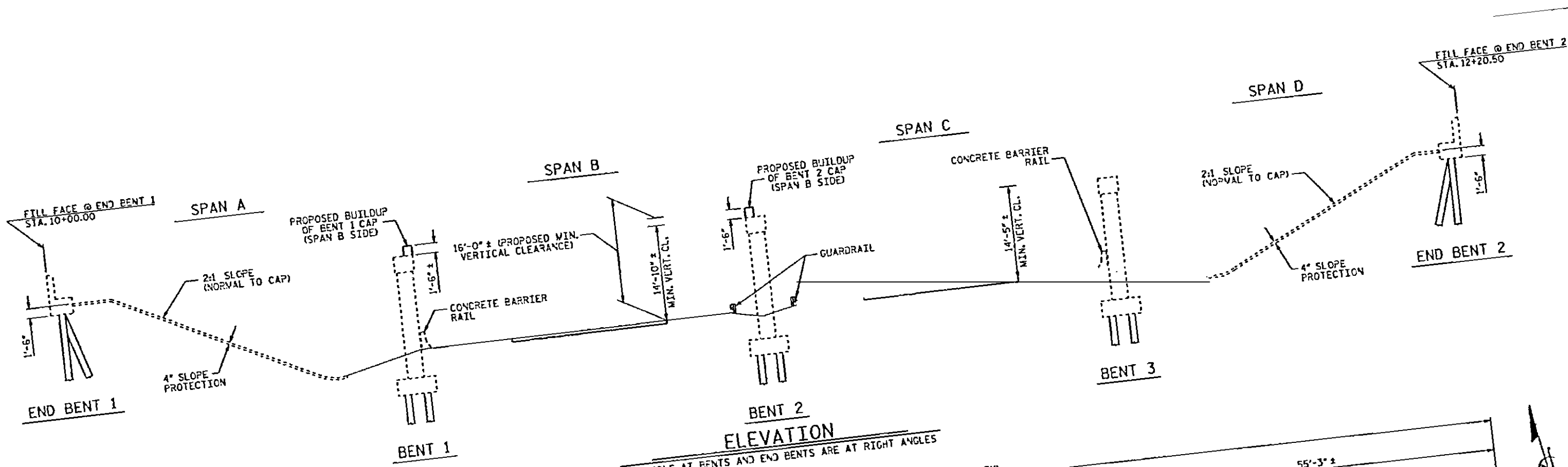
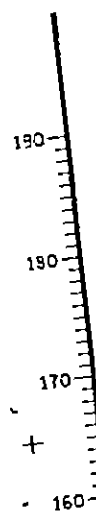
Prepared in the Office of:
DIVISION OF HIGHWAYS
2ND STANDARD SPECIFICATIONS

N. N. BULLOCK, PE
PROJECT ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Final Design Review
OWG. RMY Echlep
Case 2/11/20

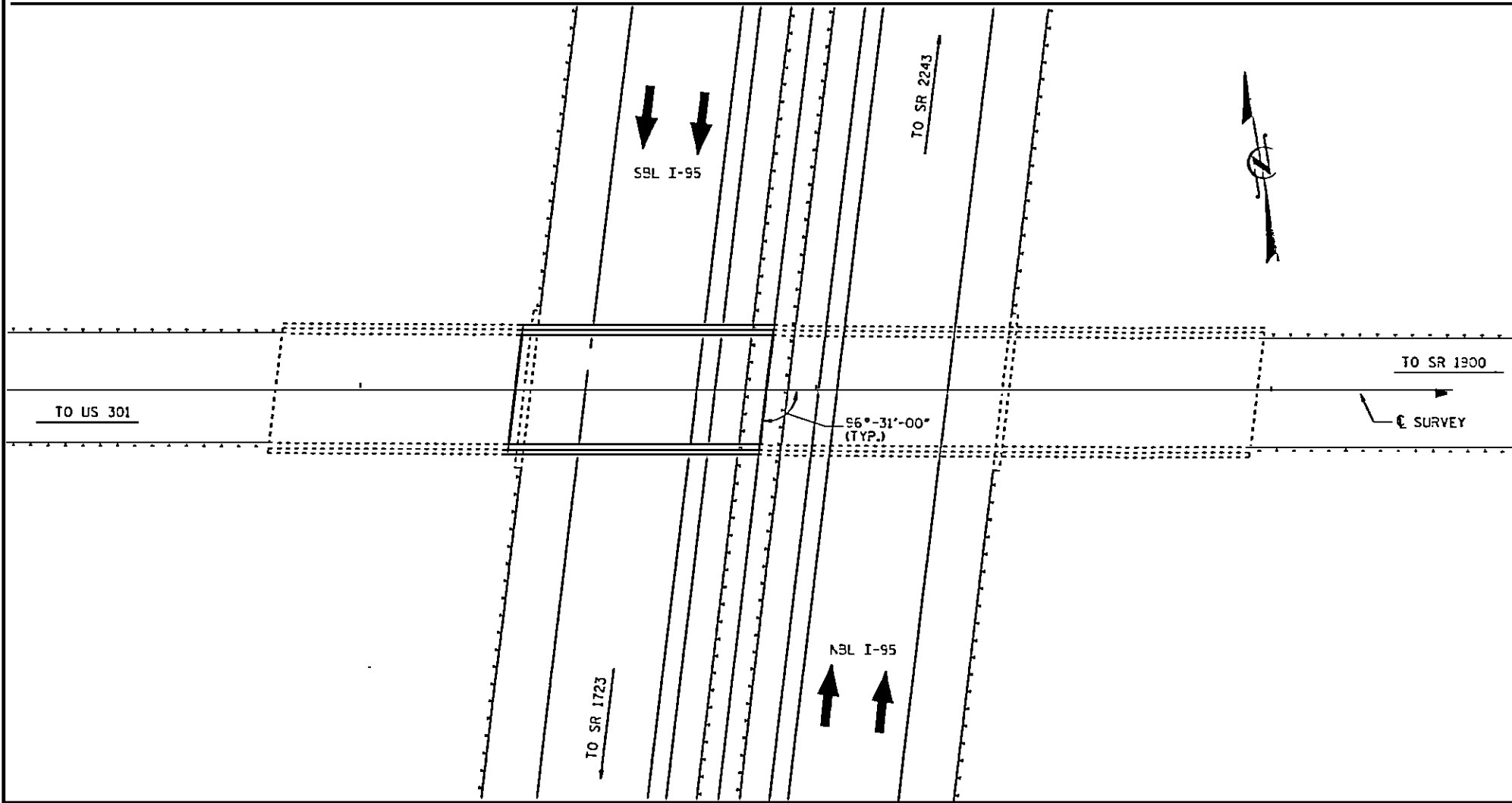


WBS ELEMENT NO. 30062
 ROBESON COUNTY
 STATION: 11+10.25
 SHEET 1 OF 2
 PEHABILITATION OF BRIDGE NO. 169

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 GENERAL DRAWING
 BRIDGE OVER I-95 ON
 SR 1718 BETWEEN



BM #80: N 421595.92 E 2013010.12 EL.174.38



LOCATION SKETCH

NOTES

- ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.
- SPAN B OF THE EXISTING STRUCTURE CONSISTING OF 55'-0" PRESTRESSED CONCRETE GIRDERS, 29'-0" CLEAR ROADWAY WIDTH, REINFORCED CONCRETE DECK SHALL BE REMOVED. BRIDGE IS PRESENTLY CLOSED.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMS OVER OR ADJACENT TO TRAFFIC, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

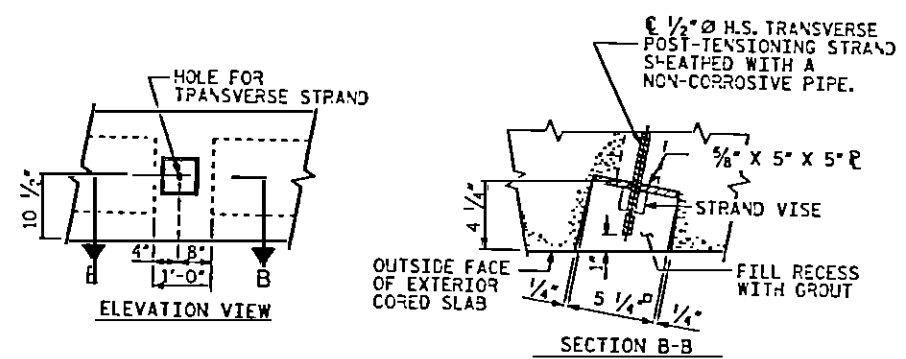
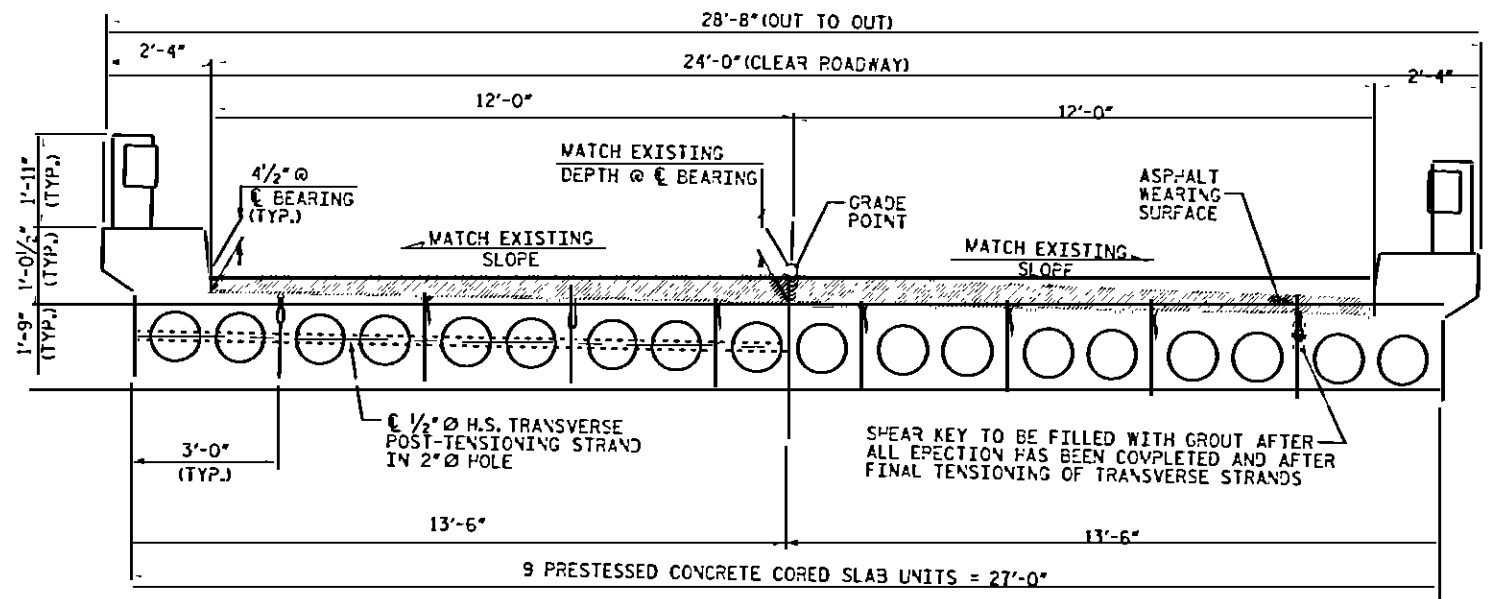
TOTAL BILL OF MATERIAL						
	REMOVAL OF EXISTING STRUCTURE	CLASS A CONCRETE	REINFORCING STEEL	CONCFETE BRIDGE RAIL	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	CU. YDS.	LBS.	LIN. FT.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE	LUMP SUM			109.54	LUMP SUM	492.94
BENT 1		4.1	772			
BENT 2		4.1	772			
TOTAL	LUMP SUM	8.2	1544	109.54	LUMP SUM	492.94

WBS ELEMENT NO. 30062
ROBESON COUNTY
 STATION: 11+10.25

SHEET 2 OF 2

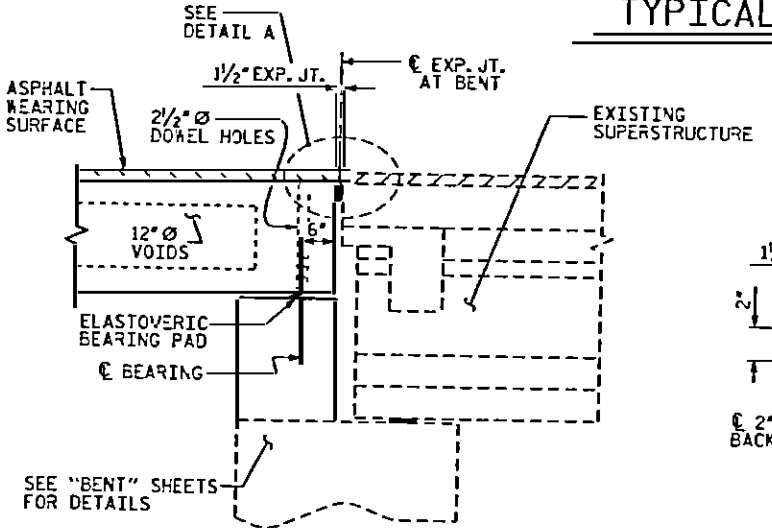


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 BRIDGE OVER I-95 ON

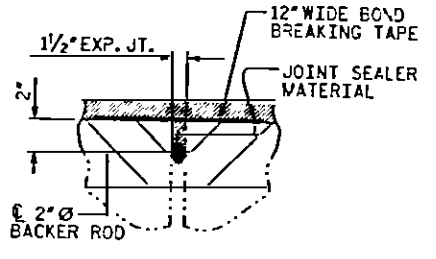


GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

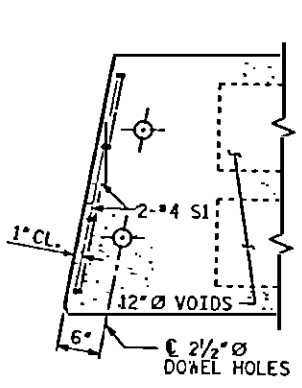
TYPICAL SECTION



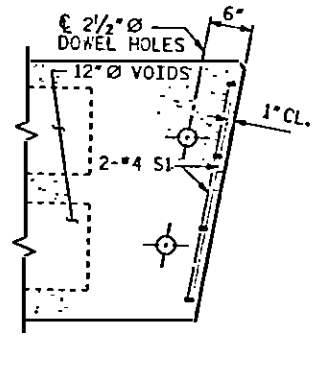
SECTION AT BENT



DETAIL A

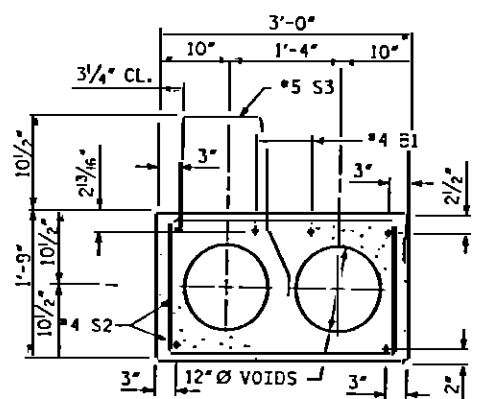


INTERIOR SECTION



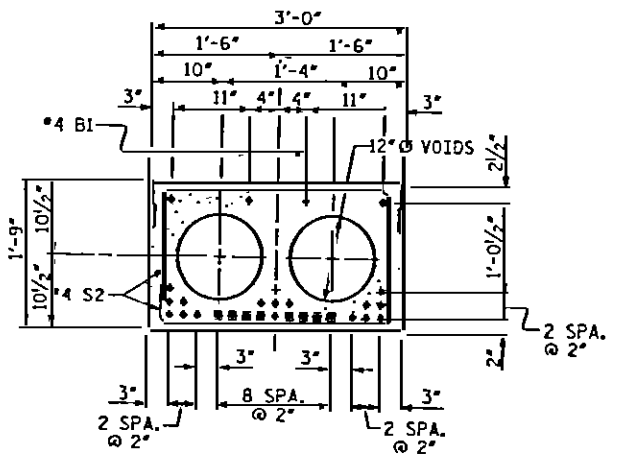
EXTERIOR SECTION

PART PLAN CORED SLAB UNITS

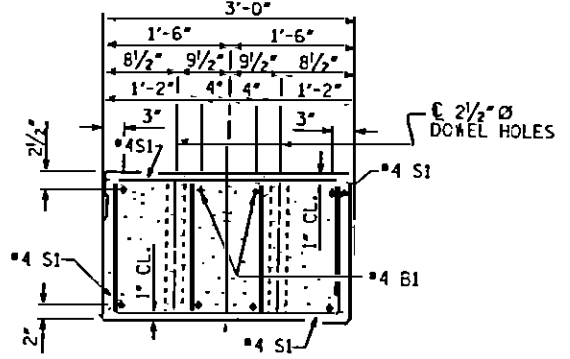


EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

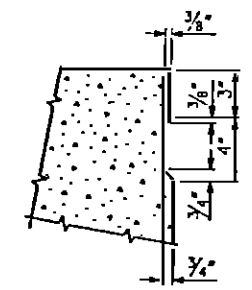


INTERIOR SLAB SECTION



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)



SHEAR KEY DETAIL

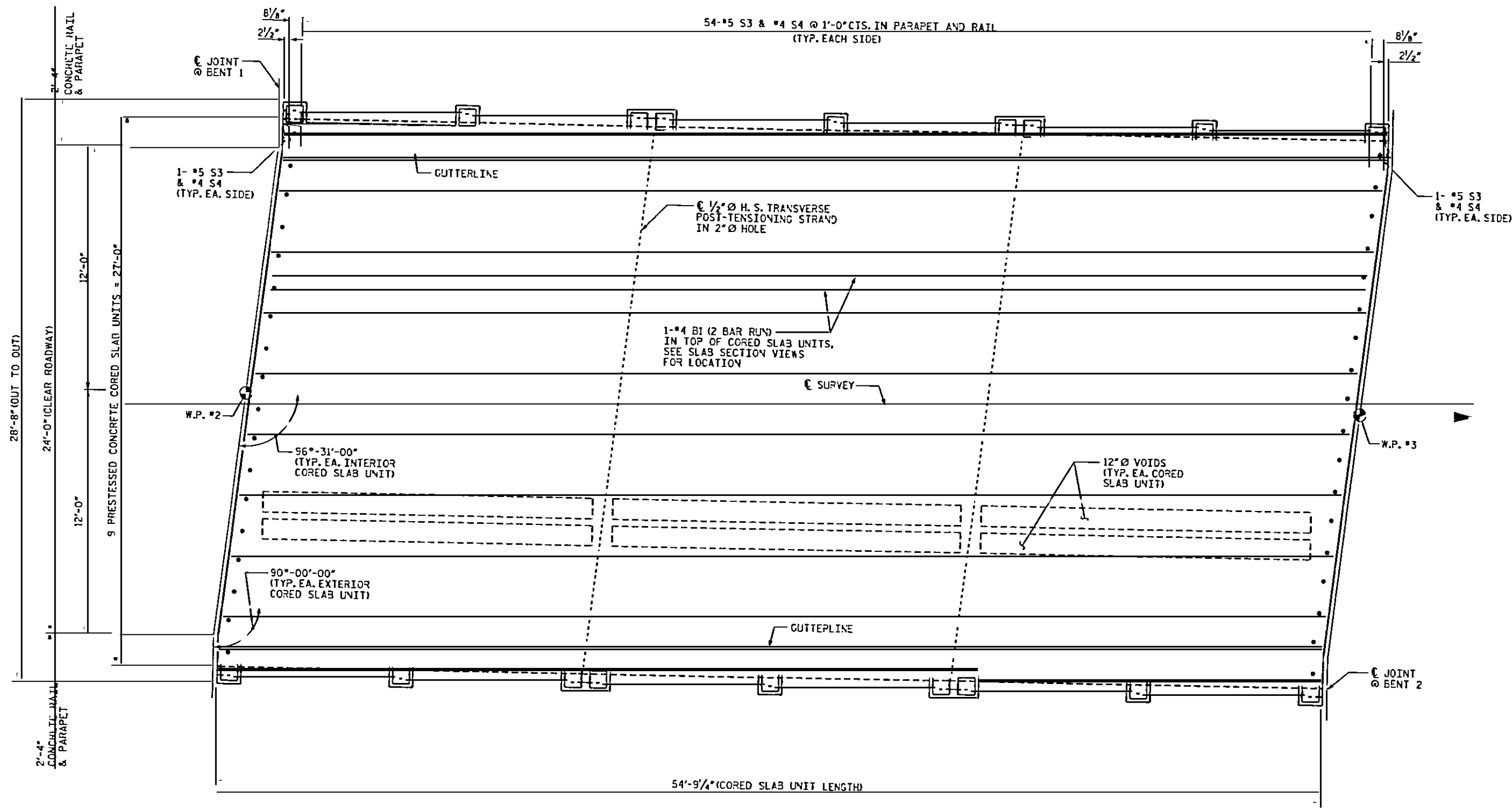
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLAB UNITS.

WBS ELEMENT NO. 30062
 ROBESON COUNTY
 STATION: 11+10.25

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALPH

STANDARD
 3'-0" X 1'-9"



PLAN OF SPAN B

FOR ADDITIONAL CONCRETE RAIL REINFORCING STEEL
& DETAILS, SEE "CONCRETE BRIDGE RAIL" SHEET.

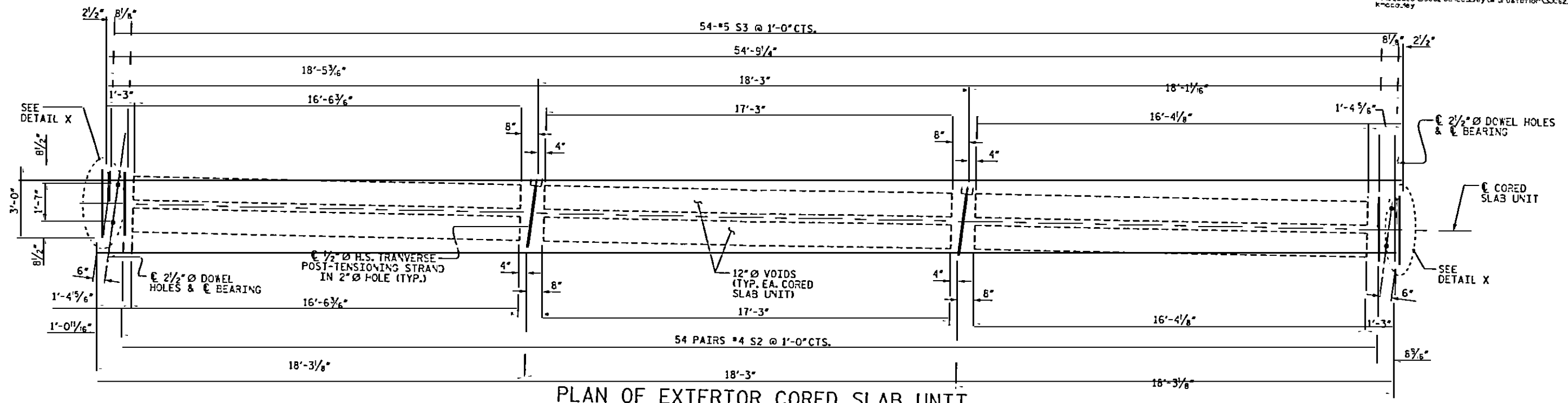
WBS ELEMENT NO. 30062
ROBESON COUNTY
STATION: 11+10.25

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

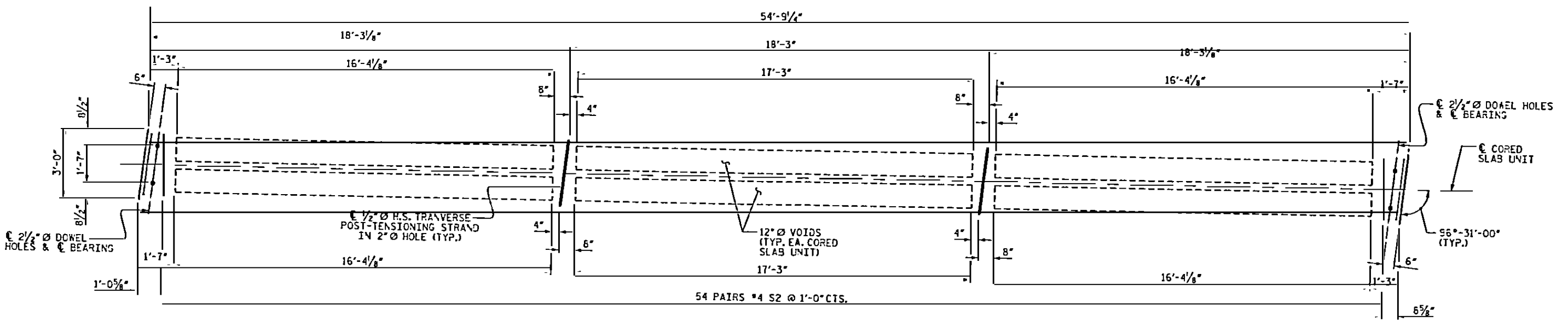
STRUCTURE





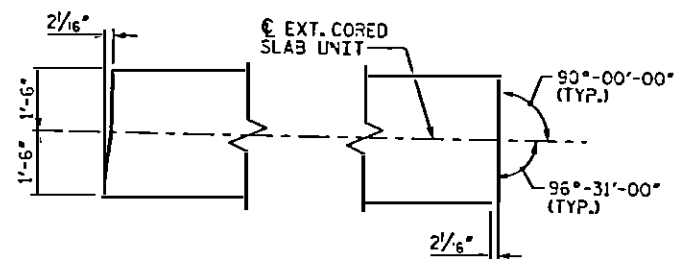
PLAN OF EXTERIOR CORED SLAB UNIT

FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLABS
SEE "PART-PLAN CORED SLAB UNITS", SHEET 1 OF 5



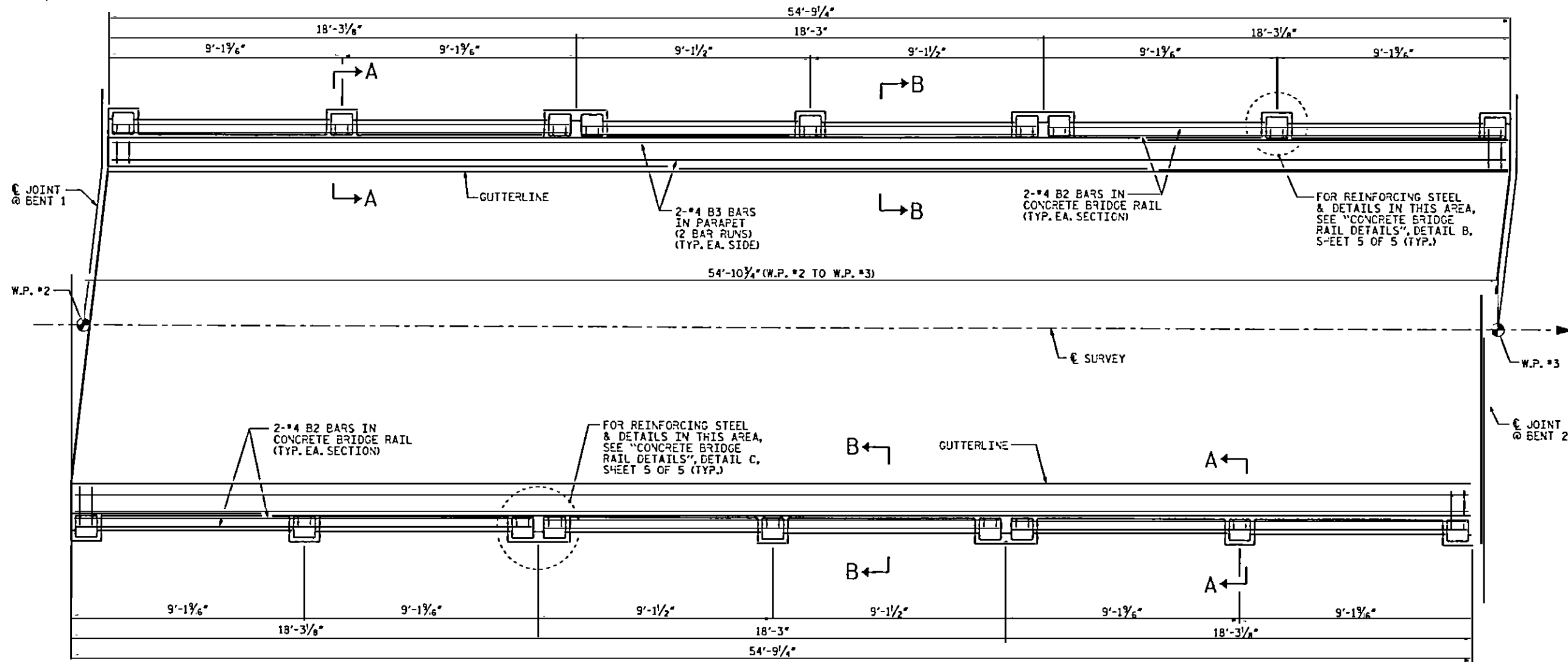
PLAN OF INTERIOR CORED SLAB UNIT

FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLABS
SEE "PART-PLAN CORED SLAB UNITS", SHEET 1 OF 5



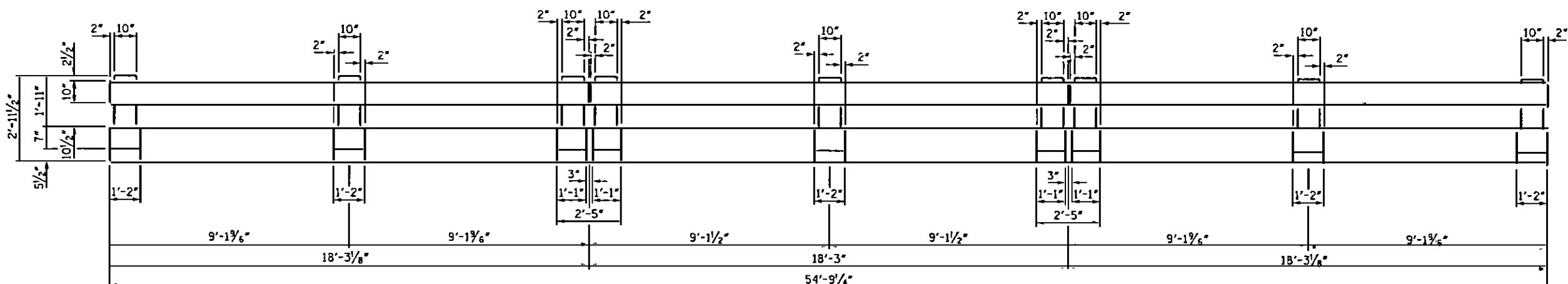
WBS ELEMENT NO. 30062
ROBESON COUNTY
STATION: 11+10.25





PLAN

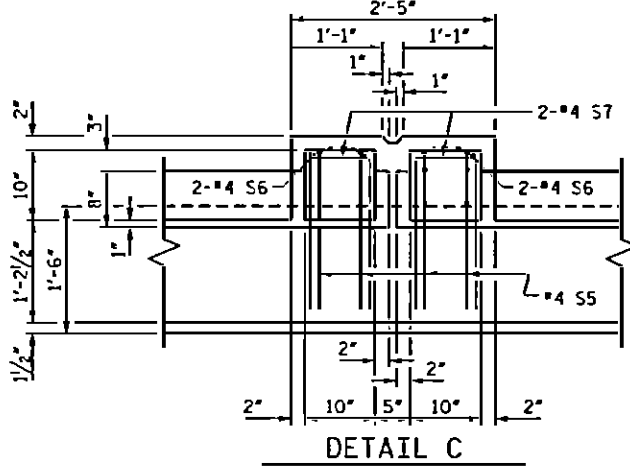
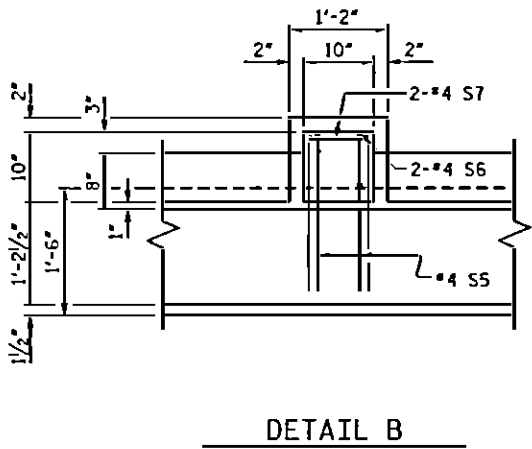
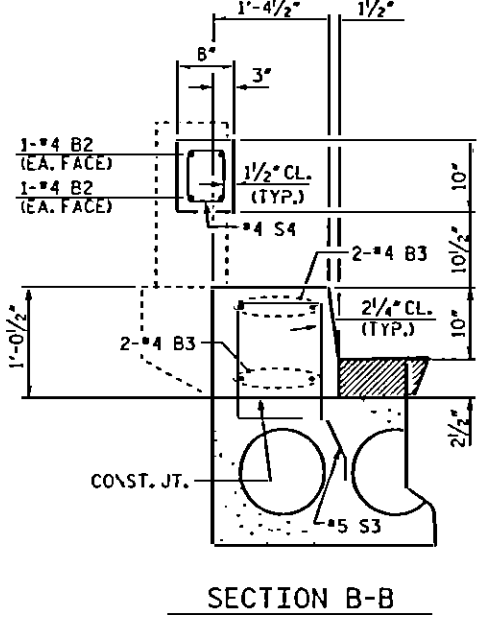
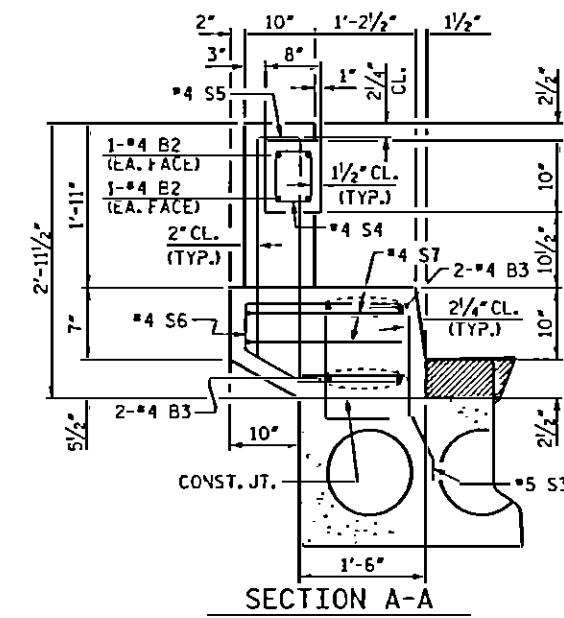
NOTE:
FOR SECTION VIEWS, SEE SHEET 5 OF 5.
CONCRETE BRIDGE RAIL SHALL BE
CHAMFERED TO MATCH EXISTING RAIL.



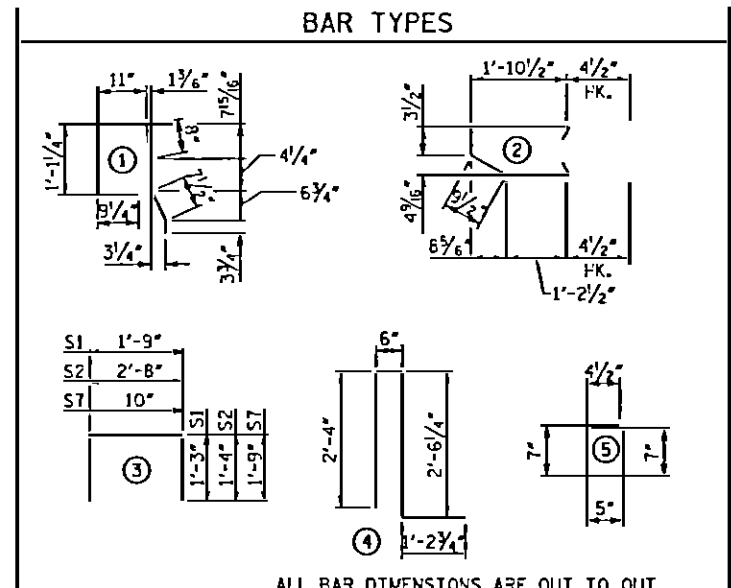
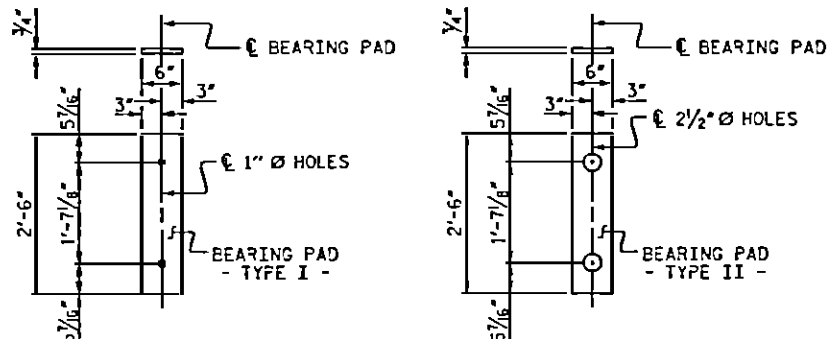
WBS ELEMENT NO. 30062
ROBESON COUNTY
STATION: 11+10.25
SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RAILROAD

SUPERSTRUCTURE



CONCRETE BRIDGE RAIL DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B1	4	#4	STR	28'-1"	75	28'-1"	75
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	108	#4	3	5'-4"	385	5'-4"	385
* S3	56	#5	1	4'-9"	277		
REINFORCING STEEL					483 LBS.		493 LBS.
* EPOXY COATED REINFORCING STEEL					277 LBS.		
5,000 P.S.I. CONCRETE					7.7 CU. YDS.		7.7 CU. YDS.
1/2" Ø L.R. STRANDS No.					26		26

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE)	2 5/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	5/8"
FINAL CAMBER	2 7/16"

** DOES NOT INCLUDE FUTURE WEARING SURFACE

BILL OF MATERIAL FOR CONCRETE BRIDGE RAIL AND PARAPET

BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B2	24	#4	STR	17'-11"	287
* B3	16	#4	STR	28'-8"	306
* S4	112	#4	5	2'-4"	175
* S5	36	#4	4	6'-7"	158
* S6	36	#4	2	4'-11"	118
* S7	36	#4	3	4'-4"	104
* EPOXY COATED REINFORCING STEEL					1148 LBS.
CLASS AA CONCRETE					11.2 CU. YDS.
TOTAL LIN. FT. OF CONCRETE BRIDGE RAIL					109'-6 1/2"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	54'-9 1/4"	109'-6 1/2"
INTERIOR C.S.	7	54'-9 1/4"	383'-4 3/4"
TOTAL	9		492'-11 1/4"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOGEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT. THE 2 1/2" Ø DOGEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOGELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN CONCPETE BRIDGE RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

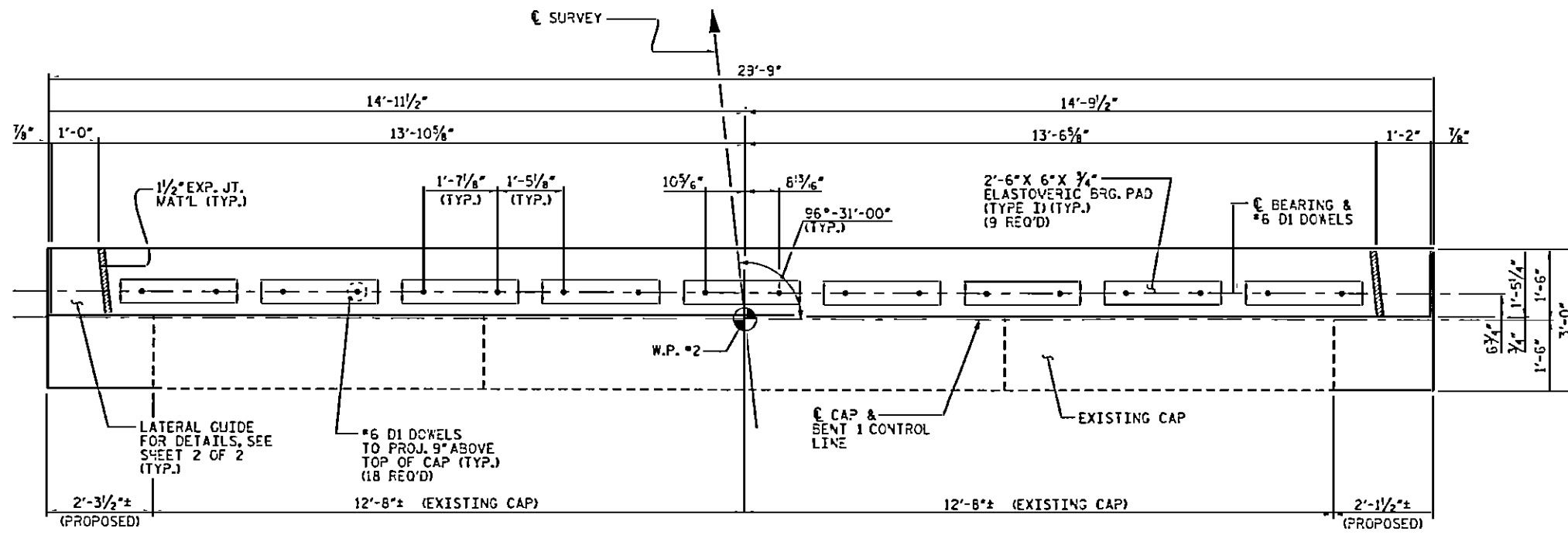
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

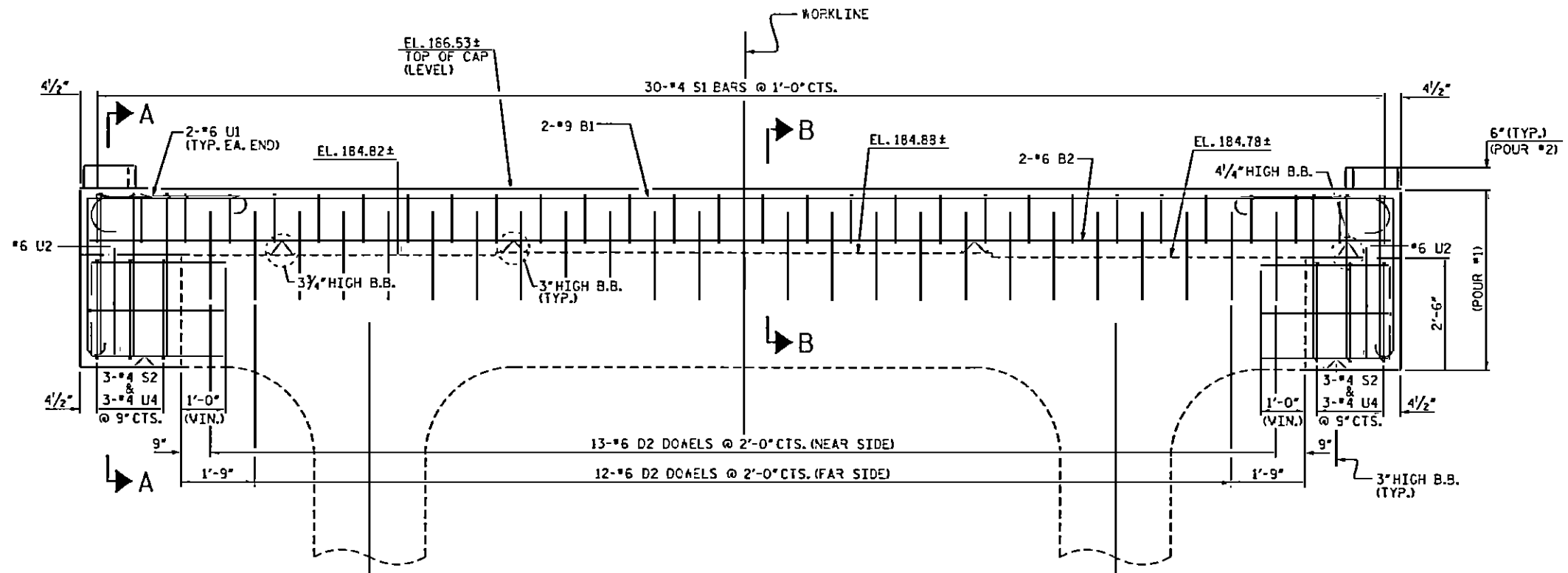
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLASS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

WBS ELEMENT No. 30062
 ROBESON COUNTY
 STATION: 11+10.25



PLAN



ELEVATION

NOTES

- REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
- D2 & U2 BARS SHALL BE ADHESIVELY ANCHORED.
- FOR ADHESIVELY ANCHORED DOWELS OR BARS, SEE SPECIAL PROVISIONS.
- ALL ELEVATIONS ARE TO BE VERIFIED BY THE ENGINEER.

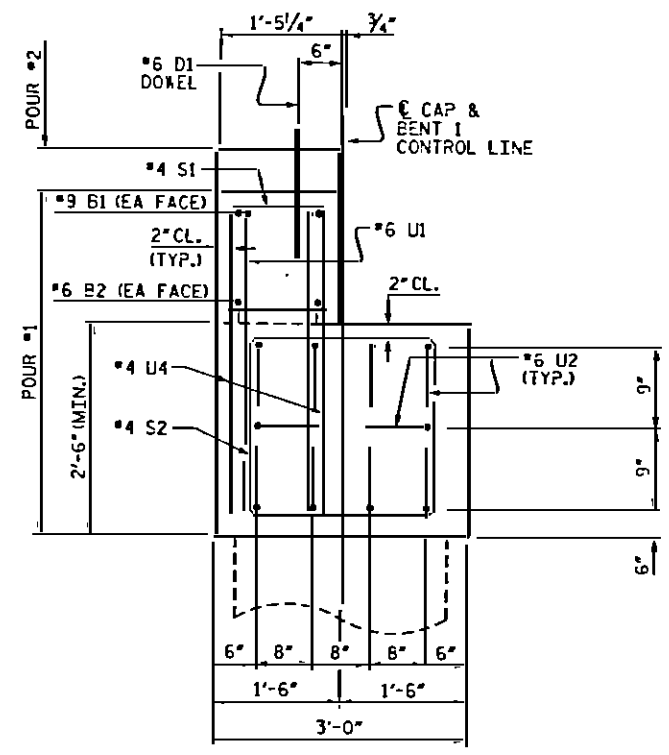
WBS ELEMENT NO. 30062
ROBESON COUNTY
STATION: 11+10.25

SHEET 1 OF 2

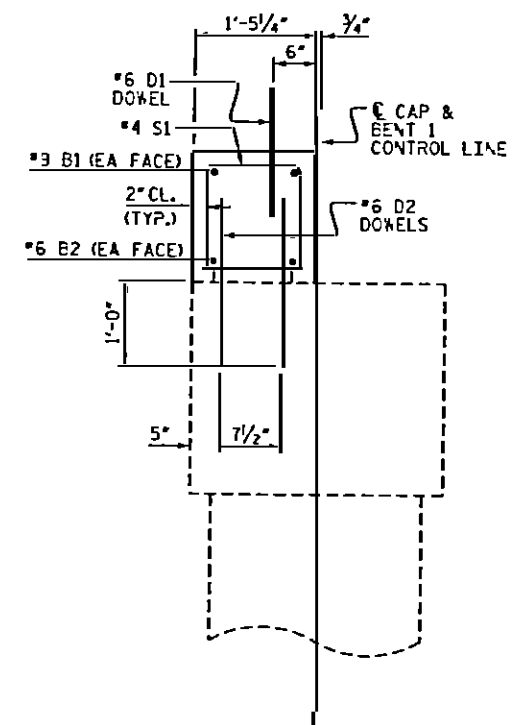
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH



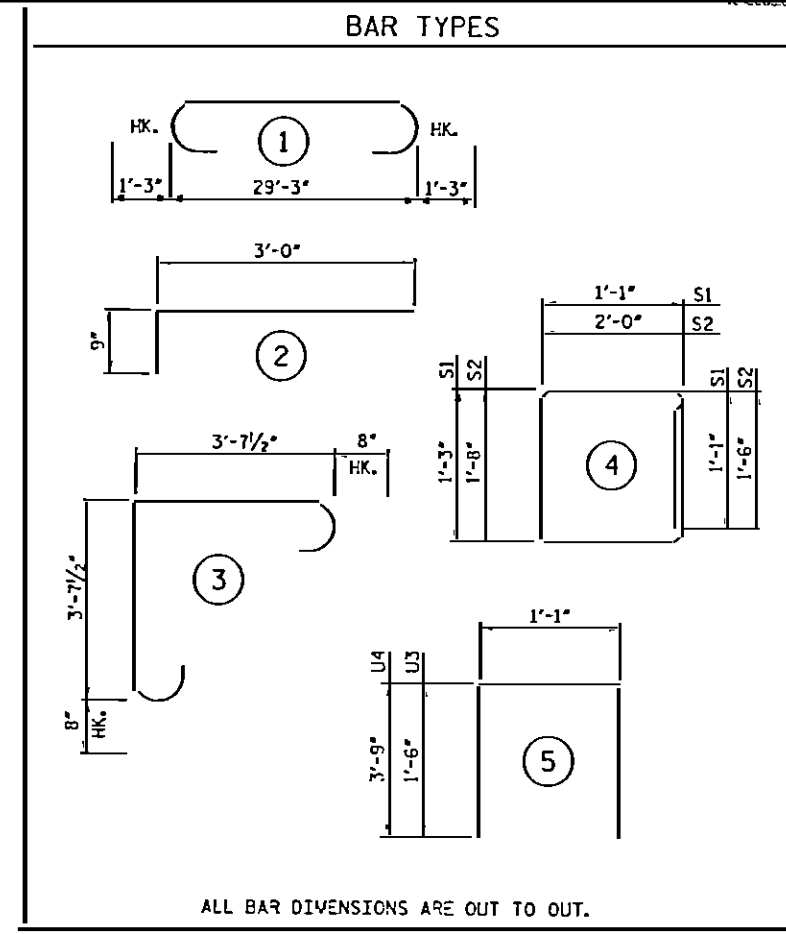
SUBSTRUCTURE
DRAWING



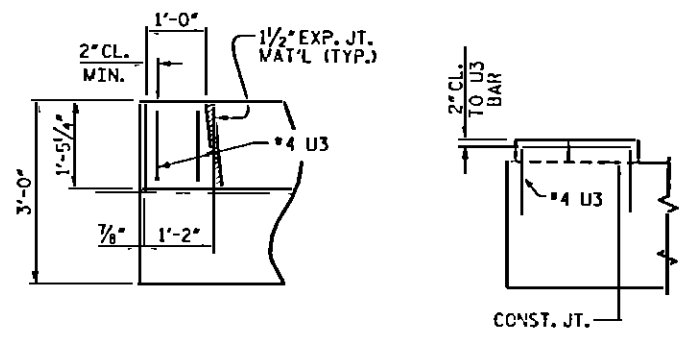
SECTION A-A



SECTION B-B



BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	2	9	I	31- 9	216
B2	2	6	STR	29- 5	88
D1	18	6	STR	1- 6	41
D2	25	6	STR	2- 0	75
S1	30	4	4	5- 4	107
S2	6	4	4	8- 8	35
U1	4	6	3	8- 7	52
U2	20	6	2	3- 9	113
U3	4	4	5	4- 1	11
U4	6	4	5	8- 7	34
REINFORCING STEEL					772 LBS
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP)					4.0 yd ³
POUR 2 (LATERAL GUIDE)					0.1 yd ³
TOTAL CLASS A CONCRETE					4.1 yd ³



PLAN
 ELEVATION
LATERAL GUIDE DETAILS

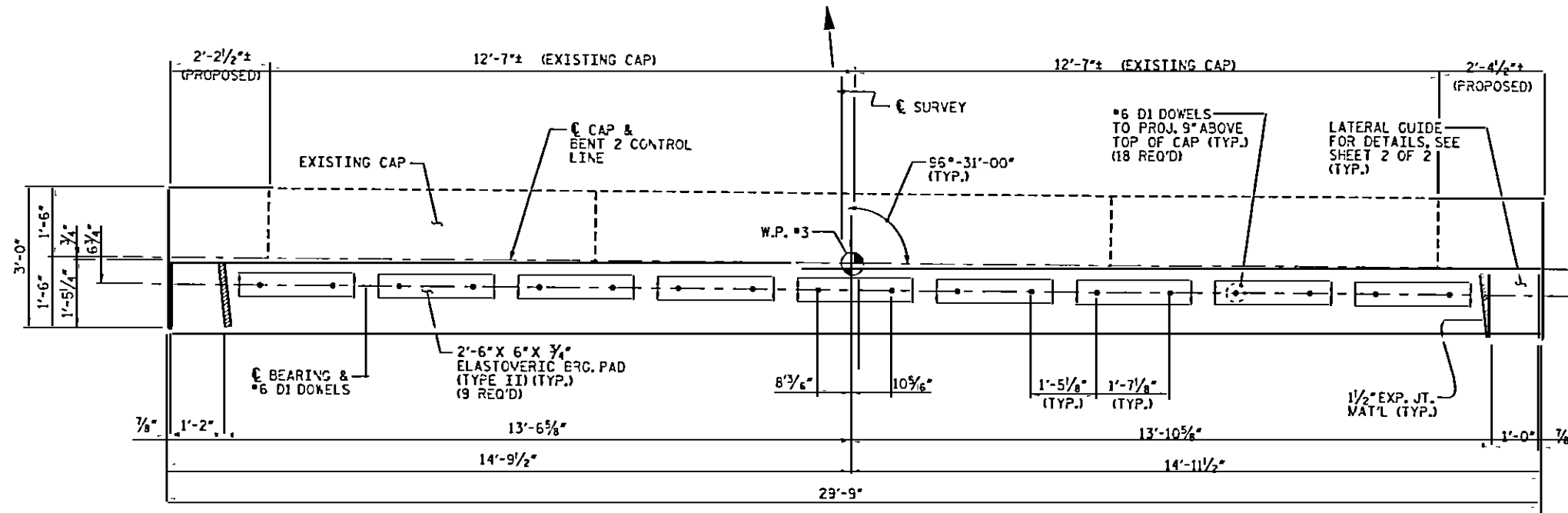
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ROBESON COUNTY
 STATION: 11+10.25

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH



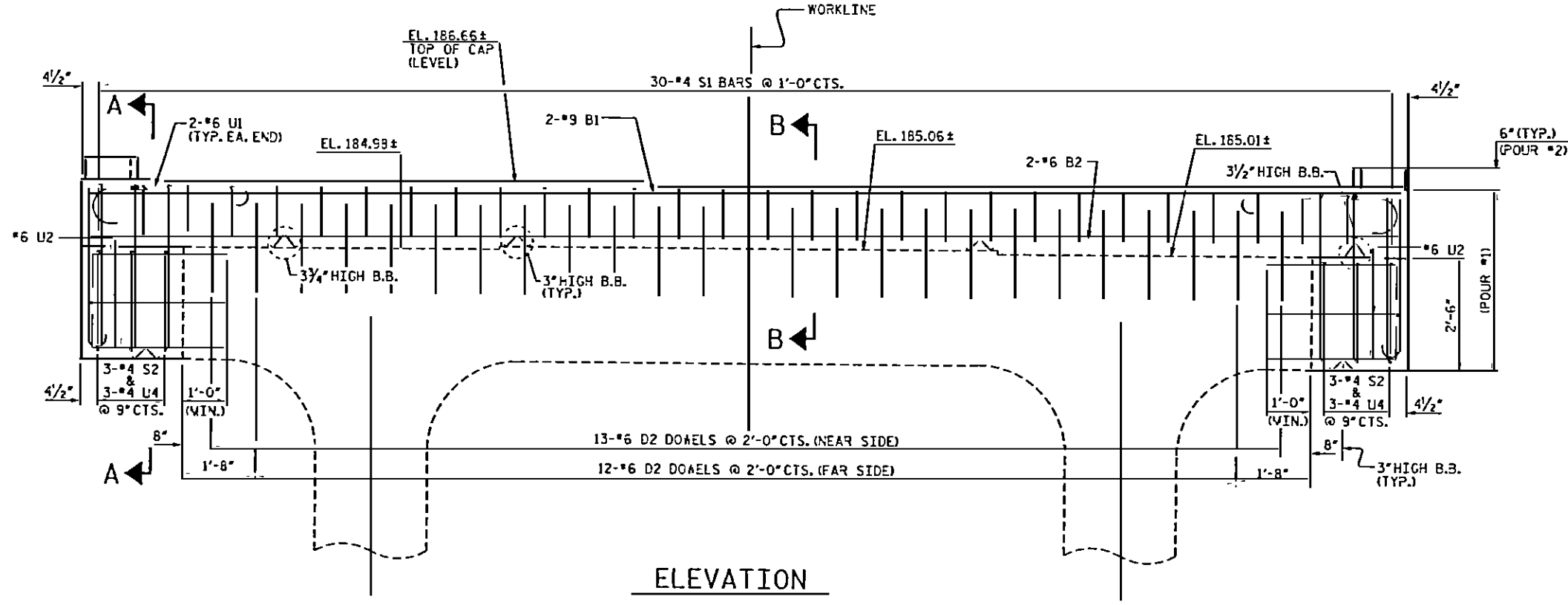
STRUCTURE



PLAN

NOTES

REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
D2 & U2 BARS SHALL BE ADHESIVELY ANCHORED.
FOR ADHESIVELY ANCHORED DOWELS SEE SPECIAL PROVISIONS.
ALL ELEVATIONS APE TO BE VERIFIED BY THE ENGINEER.

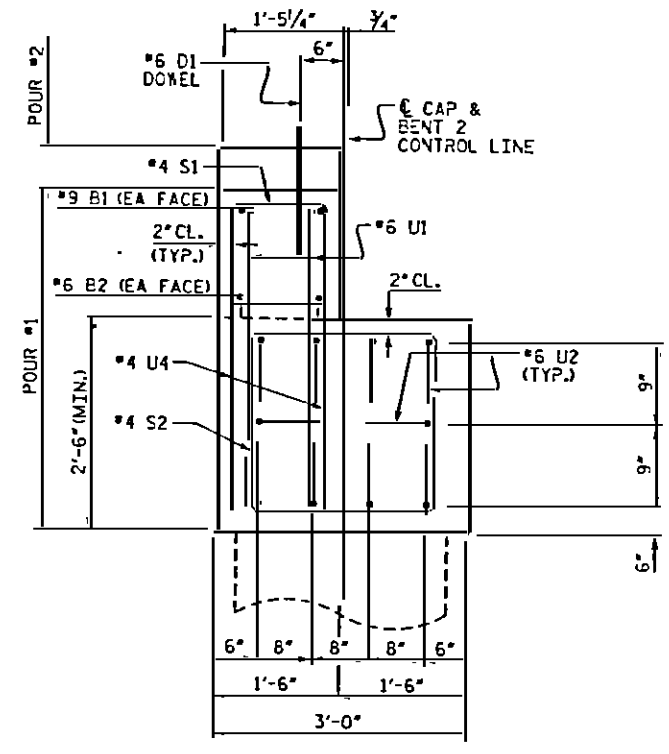


ELEVATION

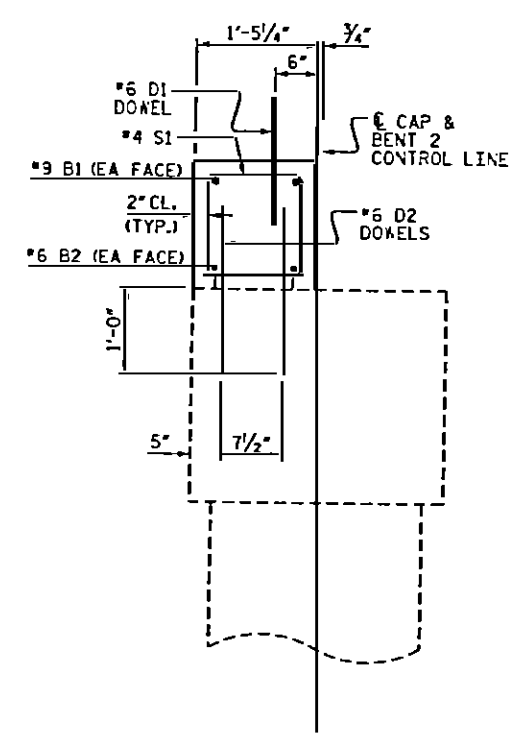
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SHEET 1 OF 2

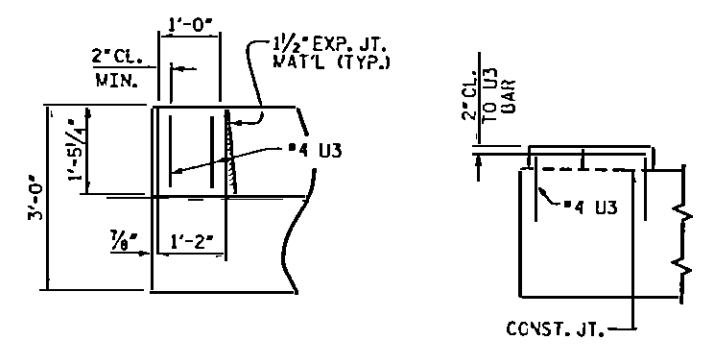




SECTION A-A

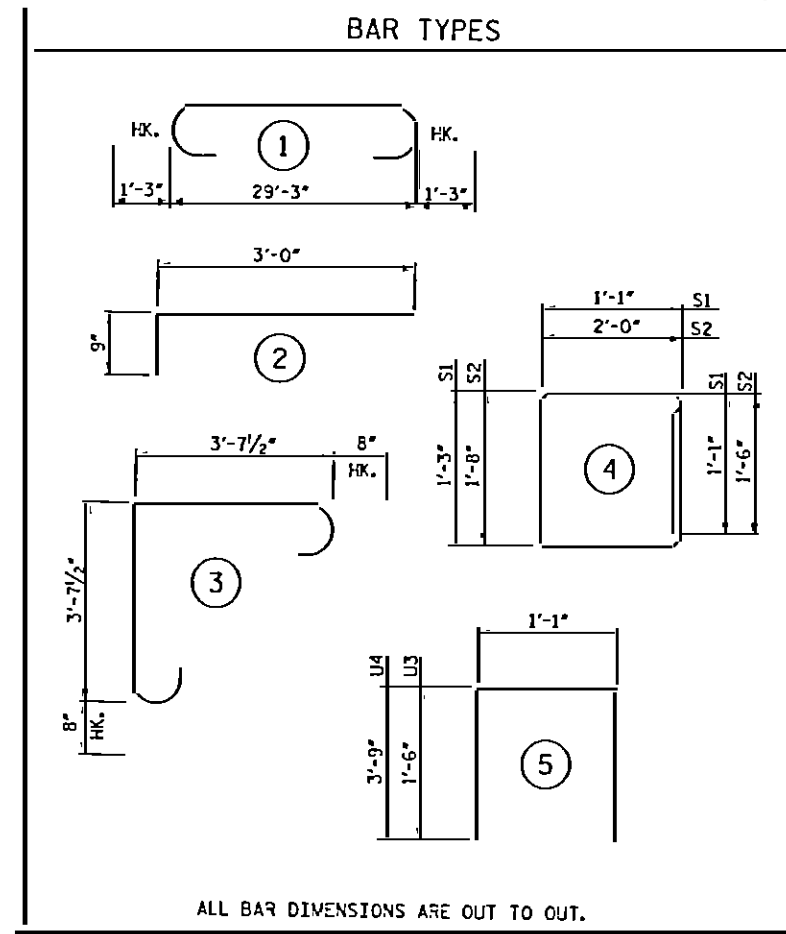


SECTION B-B



PLAN ELEVATION

LATERAL GUIDE DETAILS



BAR TYPES

BILL OF MATERIAL

BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	2	9	1	31-9	216
B2	2	6	STR	29-5	83
D1	18	6	STR	1-6	41
D2	25	6	STR	2-0	75
S1	30	4	4	5-4	107
S2	6	4	4	8-8	35
U1	4	6	3	8-7	52
U2	20	6	2	3-9	113
U3	4	4	5	4-1	11
U4	6	4	5	8-7	34

REINFORCING STEEL	772 LBS
CLASS A CONCRETE BREAKDOWN	
POUR 1 (CAP)	4.0 yd ³
POUR 2 (LATERAL GUIDE)	0.1 yd ³
TOTAL CLASS A CONCRETE	4.1 yd ³

WBS ELEMENT NO. 30062
 ROBESON COUNTY
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SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

